INFRARED RADIATION-DETECTING DEVICE

Abstract

An $Al_xGa_{1-x}As/GaAs/Al_xGa_{1-x}As$ quantum well exhibiting a bound-to-quasibound intersubband absorptive transition is described. The bound-to-quasibound transition exists when the first excited state has the same energy as the "top" (*i.e.*, the upper-most energy barrier) of the quantum well. The energy barrier for thermionic emission is thus equal to the energy required for intersubband absorption. Increasing the energy barrier in this way reduces dark current. The amount of photocurrent generated by the quantum well is maintained at a high level.